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ABSTRACT

A study was conducted of the differences in the frequency of selected student-teacher interaction in differentiated staffs and in non-teamed schools. The interaction processes studied were synthesized from Erikson's four stages of childhood: student behaviors--information processing, choice-making, reflection, problem solving, and procedures or operations (student involvement in activities using prescribed instructions); teacher processes--diagnosis, prescriptions, and presentation. Ninety children (K-3) in non-teamed schools and ninety in staff differentiated schools were observed each school day for two weeks, and behaviors were categorized. The data revealed significant differences in pupil-teacher interaction between the two types of schools: (1) children in differentiated staff schools received more individual prescriptions and made more choices about their learning activities, while children in the non-teamed schools engaged more frequently in information processing with adults. The non-teamed schools appeared to be characterized by information processing and presentations--somewhat more controlling and/or group-oriented pupil-teacher activities. The differentiated staff schools appeared to be characterized by choice-making and prescription--complementary processes which enhance individual ego strengths. [Not available in hard copy due to marginal legibility of original document.] (KM)

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Differentiated Staffing and Non-Formal Organizational Structures as They Affect Elementary School Teacher-Pupil Interaction

by

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A Problem

It has been asserted that the differentiation of staff roles facilitates certain desired pupil-teacher interaction processes. Theoretically, the assertion has withstood the test of logic (Hull and Petrie, 1973). However, empirically there is not a great deal of evidence indicating that specialization of staff roles does indeed affect interaction processes. From the available research, it is generally not clear whether differentiated staff (teamed) or non-teamed organizational arrangements facilitate pupil-teacher interaction to a greater degree.

This study, then, is an analysis of the differences in the frequency of selected student-adult interaction in differentiated staffs and in non-teamed schools.

A Theory

That children grow through a series of stages is a common assumption of considerable theoretical and empirical work. Freud (1953), Piaget (1970), and Erikson (1963) postulate a series of stages in human growth. While there are many differences in what these theorists have written, a common theme is the influence of environment upon individual development. This viewpoint is most strongly emphasized by Erik Erikson (1963) who concludes, "only to the extent that children have the opportunity for ego interactions with adult representatives of cultural institutions can the inborn capacities and potentialities of the child be realized."

Erikson sees the respective developmental stages as functional prerequisites for cumulative development. If the child is fortunate enough to form satisfying interpersonal relations and learns within a rich environment, progress from one stage to another occurs without discontinuities. On the other hand, sterile interactions and environments provide little or nothing for the development of unrealized capacities and potentialities. Furthermore, skills, attitudes and learnings not acquired at one stage may affect development during subsequent stages.

Erikson's (1963) framework suggests that children come to kindergarten or first grade toward the end of the third (initiative) or at the beginning of the fourth (industry) stage. Prior to school entrance the child has developed a constellation of ego strengths characterized by some degree of hope, willpower and purpose particularistic to his passage through the three preschool stages of trust-mistrust, autonomy-shame and initiative-guilt. Furthermore, this constellation of strengths, values, attitudes and skills affect the current industry-inferiority stage of the primary school child. It is during this stage of industry-inferiority that the child's competence is developing. Competence and the child's integration of hope, willpower and purpose are affected by the quality of the school environment, especially by interactions between adult and child.

If the interaction processes themselves are uniquely important, it is logical to assume that certain processes are more important than others. Logically, the teaching processes of communicating, decision making, reflecting and problem solving are relevant to the developmental stages cited above. These teaching processes enable the child to recapitulate the content and actions critical to the respective stages and stimulate further integrations and accommodations. The sequence may be visualized in Figure #1 below.

Figure 1

Stages	Adult-Student Processes	Outcomes or Strengths
Trust-Mistrust	Information Processing	Hope
Autonomy-Shame	Making Choices	Willpower
Initiative-Guilt	Reflecting Upon Worth or Consequences	Direction, Purpose
Industry-Inferiority	Problem Solving and Questioning	Competence

Figure 1 illustrates a logical relationship between each developmental stage, outcome (or desired ego strength as the stage ends), and the teaching process which facilitates development of the corresponding strength. For example, the teacher may use those communication patterns to process information which shares the child's frame of reference. When each shares the other's frame of reference, the teacher then possesses the diagnostic data necessary for prescribing curricular alternatives and also communicates care and worth to the child - the basis of hope. By choosing

among prescribed alternatives, the child develops willpower. Upon completion of a task, the teacher can help the child understand the worth and purpose of the activity by sharing and reflecting upon specific experiences. This actively leads to direction and purpose.

By communicating, choosing and the activity itself, questions and problems arise whose solutions require the use of the disciplines. When children become able to use the discipline to solve problems, competence is gained. When the adult-student processes cited in Figure 1 are employed in teacher-pupil interaction, not only cognitive growth but capacities of the child are released as he becomes a more competent, purposeful, self-directed, and hopeful person.

Methodology

In order to investigate the relationships between staffing patterns and selected pupil-teacher interactions, it was necessary to determine how often desired instructional processes occurred and how often developmental student behaviors occurred. Before this was done,

Erikson delineates four stages of childhood in which children cumulatively develop strengths in drive, willpower, direction and competence. The central processes most related to these strengths are information processing, making choices, reflection and the processes of the respective disciplines. While these processes are inseparable and integrated, the diagram suggests a sequencing of interaction in learning and instructional programs. The stages of childhood in the first column generally have passed before the child enters school. However, the separate and final development of the strengths cited in the third column depend upon continued student-adult interaction in the home and school. The interaction processes in column two may serve as a guide for ordering instructional skills, instructional strategies and learning experiences necessary for quality interaction. For in large measure the extent to which a child engages in quality interaction with adults in the home and school determines whether his capacities and potentialities can be developed.

descriptors of instructional processes, as well as descriptors of student behaviors, were identified. The behavioral descriptors of quality interaction processes were synthesized from the four stages of childhood (Figure 1) and the complementary teacher behaviors conjectured to sustain the interactions. Once teacher and student activities were characterized, observations were made in the classroom. Finally, the data regarding children in non-teamed and differentiated staff schools were compared for significant differences. The behavioral descriptors of the respective categories were as follows.

STUDENT BEHAVIORS

A. Information Processing - student verbal response denoting comprehension of words and ideas. Example - telling or explaining what he has heard or his own information relevant to a topic.

B. Choice-Making - student selection of an explicit alternative regarding the use of time, space, subject matter, materials, and personnel in the course of daily activities. Example - selection of what or when to study in the resource center.

C. Reflection - student expression of feelings regarding the worth of an activity or product. Example - statement indicating accepting, prizing, valuing or rejecting his own or group work.

D. Problem Solving - student activities which demand the specification of questions or problems and the identification of the processes and conventions necessary for task accomplishment. Example - involvement in identifying ways to extend a language experience. How would the artist or musician deal with liking or love?

E. Procedures or Operations - student involvement in activities using prescribed instructions and procedures for task accomplishment. Example - doing multiplication operations in a prescribed assignment.

TEACHER PROCESSES

F. Diagnosis - teacher-initiated interaction sustained to determine the student's frame of reference. Specifically, interactions regarding the student's level of comprehension, feelings or learning problems. Example - questioning techniques designed to cause the child to verbalize the extent of his comprehension and sequencing of operations.

G. Prescription - teacher specifies learning goal and indicates the activities or resources necessary to achieve the goal. Example - an assignment in arithmetic.

H. Presentation - teacher verbalized instruction to provide content or experiential prerequisites for task accomplishment. Example - telling, explaining or demonstrating mathematical processes.

Using the process of random selection, ninety children (K-3) were identified from the two non-teamed schools and ninety children were identified from two randomly selected staff differentiated schools. Volunteer parent observers were trained to write descriptions and later they categorized student and teacher behaviors. These samples of adult-pupil interaction consisted of transcripts describing 30 minutes of a school day, each day during a two-week period. Observations were scheduled so the time samples covered the entire school day. In all, seventy-five transcripts were obtained from the randomly selected staff differentiated schools and seventy-five were obtained from the non-teamed schools. Observers categorized their own transcripts, but they were also categorized by the principal investigators without reference to the observer's decisions. The investigators categorized 120 transcripts obtaining a reliability coefficient of .82. The remaining transcripts were scored by the investigators independently.

Findings

Table 1 indicates that there were statistically significant differences between non-teamed and staff differentiated schools in two categories of student behavior: Information Processing and Choice-Making.

TABLE 1

Comparison of Differentiated Staff Schools and Non-Team Schools Pupil Activity

	Differentiated Staff		Non-Teamed Staff		Level
	Frequency	Percent	Frequency	Percent	Significance*
A. Information Processing	43	22	68	37	$p < .01$
B. Choice-Making	45	23	19	10	$p < .01$
C. Reflection	9	5	10	6	N.S.
D. Problem Solving	4	2	6	3	N.S.
E. Procedures	95	48	81	44	N.S.
Total	196	100	184	100	

*Differences were determined by Davies' test for significance of difference between percentages.

Children in the non-teamed schools processed significantly more information in interaction with their teachers than children in the staff differentiated schools. Children in the staff differentiated schools made significantly more choices regarding learning activities than did children in non-teamed schools.

A further analysis of Student Information Processing (Category A, Table 1) revealed significant differences in the number of students who were processing information (see Table 2).

TABLE 2

Analysis of Student Information Processing
(Category A, Table 1)

	Differentiated Staff Children N=75	Children with Non-Teamed Staff N=75	Significance of Difference*
Frequency of Student Response	43	68	
Number of Children Responding	32	48	
Percent of Children Responding	43	64	$p < .01$

*Differences were determined by Davies' test for significance of difference between percentages.

Table 2 indicates that teachers in the non-teamed schools verbally interacted with sixty-four percent of the children during the time sample; in the differentiated staff schools adults interacted with forty-three percent of the students during the time sample.

With respect to teacher activity, Table 3 indicates that there were significant differences in instructional patterns. The non-teamed teachers made presentations more frequently than did staff differentiated teachers. Teachers in differentiated staff schools made prescriptions more frequently than did staff in non-teamed schools.

TABLE 3

Comparison of Differentiated Staff Schools and Non-Teamed Schools Teacher Activity

Category	Differentiated Staff		Non-Teamed Staff		Level of Significance*
	Frequency	Percent	Frequency	Percent	
F. Diagnosis	47	19	28	18	N.S.
G. Prescriptions	100	39	43	28	$p < .05$
H. Presentations	107	42	84	54	$p < .05$
Total	254	100	155	100	-----

*Differences were determined by Davies' test for significance of difference between percentages.

Further analysis of teacher presentations (Category H, Table 3), revealed that the greater percentage of presentations in non-teamed schools (54%) also involved a significantly greater percentage of the children (see Table 4). Seventy-nine percent of the children participated in teacher presentations in the non-teamed schools as compared to fifty-five percent of the children in the differentiated staff schools.

TABLE 4

Analysis of Teacher Presentations
(Category II, Table 4)

	Differentiated Staff N=75	Non-Teamed Staff N=73	Significance of Differences*
Frequency of Presentations	107	34	
Children Involved in the Presentations	41	59	
Percent of Children Involved	55	79	$p < .01$

*Differences were determined by Davies' test for significance of difference between percentages.

Conclusions

The data revealed that there were significant differences between the non-teamed and staff differentiated schools with regard to pupil-teacher interaction. It is evident that children in the differentiated staff schools received more individual prescriptions regarding their learning program than did children in non-teamed schools. It is evident that children in the staff differentiated schools made more choices about their learning activities. For example, their prescriptions accommodated more choices with regard to selection of reading materials, psychomotor activities, work partners, and when to accomplish various tasks.

On the other hand, the children in the non-teamed schools engaged more frequently in information processing with adults than did the children in the differentiated staff schools. The data revealed that teacher-pupil interaction in staff differentiated schools is characterized by ego building processes to a greater extent than is interaction in the non-teamed schools.

Discussion

It was apparent during the study that both children and adults were aware they were being observed and their activities recorded. The observers reported that non-teamed teachers often incorporated the observed child into the instructional program or adapted the instructional program so that the child might be observed performing. In contrast, children in the differentiated staff schools were more often working independently in learning centers or the library and teacher redirection and thus intervention was less apt to occur. It is conjectured that the difference between the schools on the Information Processing category would have been less without this intervention.

Instruction in the school district is generally characterized by a heavy emphasis on information processing and procedures or operations in the disciplines in the conventional instructional setting.* On the other hand, the data revealed that in the differentiated staff schools, choice-making and teacher prescriptions occurred more frequently than would be generally expected (meaning that teachers specified various ways students might learn numbers, words, or whatever, and the student chose among these alternatives). Student choice-making may be related to prescriptions which allow a student freedom regarding use of time, space, resources, subject matter and personnel. In the final analysis, the evidence regarding significant differences in prescriptions and student choice-making indicated that staff differentiated school faculties are probably more student oriented in that they individually prescribe learning activities and accommodate student choices significantly more often.

The few reflections which occurred in all schools (Category C, Table 1), implied that both non-teamed and differentiated staff

*Many authors speak of the teacher centered instructional patterns which deny the child opportunities to experience the discipline as contrasted to being taught about the discipline. Ned Flanders documents the prevalence of teacher talk in teacher dominated classrooms. The recent American film documentary, "High School," and the Canadian film, "No Reason to Stay," further emphasize the sorts of instruction which deal with operations. Gale Jensen's and Jack Gibb's respective analyses of the socio-psychological structure of instructional groups and processes of group instruction are other serious analyses. The Dynamics of Instructional Groups, NSSE Yearbook, 1960.

teachers seldom incorporated the child's feelings as content to be used in pupil-teacher planning or decision making.

With respect to the category, Problem Solving, logic dictates that effective problem solving involves cumulative competencies usually not evident in a K-3 population. Thus, it is not unexpected that little problem solving activity was found. For example, proficiency in information processing is a prerequisite for communicating and making choices. Opportunity to choose and practice in making choices are both necessary in order that a child become responsible for his own decisions or be capable of reflecting upon the effects of his choices. Problem solving demands skill in processing information, making choices among potential alternatives, carrying out the activities to completion, and reflecting upon the outcomes.

In summary, this analysis of the difference between the frequency of selected student-adult interactions in differentiated staff schools and non-teamed schools reveals significant differences in choice-making and processing information. The non-teamed schools appear to be characterized by information processing and presentations. These processes appear to be somewhat more controlling and/or group oriented pupil-teacher activities. On the other hand, in differentiated staff schools, the processes of choice-making and prescribing suggest complementary processes which enhance individual ego strengths.

Therefore, the writers submit that if all other variables are equal, differentiated staff organizational structures afford the opportunity for the type of pupil-teacher interaction which supports the developmental growth patterns characterized by Erikson.

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